

IN THE CLAIMS

1. (Currently Amended) ~~A diffractive~~Diffractive grating element (SG) arranged on or embedded within a ~~light transmittive, light-transmittive~~ preferably planar waveguiding substrate (S) and arranged to interact with an incident light wave (W) in order to couple ~~the~~ energy from said incident light wave (W) into said substrate (S) to form at least one diffracted light wave (R₁, R₄) propagating within said substrate (S) and corresponding to at least one selected diffraction order, ~~characterized in that~~wherein the grating element (SG) is divided into at least two different grating regions (BG_{left}, BG_{right}; MBG_{left}, MBG_{right}) each having different diffractive properties and arranged on opposite sides respect to a transition point (TP) to form a splitted grating element, where the diffractions generated by said at least two different grating regions (BG_{left}, BG_{right}; MBG_{left}, MBG_{right}) are arranged to mutually compensate for ~~the~~for a variation in ~~the~~ input angle (θ) of the incident light wave (W) ~~to the~~ to a total diffraction efficiency of the at least one diffracted light wave (R₁, R₄) propagating within said substrate (S).substrate.
2. (Currently Amended) The diffractive grating element (SG) according to the claim 1, ~~characterized in that~~wherein in said splitted grating element (SG) ~~the grating~~a grating profile of at least one of the grating regions (BG_{left}, BG_{right}; MBG_{left}, MBG_{right}) ~~has~~has ~~an~~ asymmetric period profile, preferably ~~blazed~~a blazed period profile.
3. (Currently Amended) The diffractive grating element (SG) according to the claim 1, ~~characterized in that~~wherein said splitted grating element (SG) is arranged to be symmetrically splitted, *i.e. the*~~that~~ is, the element comprises two grating regions (BG_{left}, BG_{right}) ~~whose~~ having grating period profiles ~~are arranged to be~~arranged as substantially mirror images of each other with respect to transition point (TP).a transition point.
4. (Currently Amended) The diffractive grating element (SG) according to the claim 1, ~~characterized in that~~wherein said splitted grating element (SG) comprises at least two grating regions (BG_{left}, BG_{right}) ~~whose~~ having grating period profiles ~~are arranged to have~~with substantially different depths.

5. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that wherein~~ in said splitted grating element-(SG) the diffraction efficiency of at least one of the grating regions-(BG_{left}, BG_{right}; MBG_{left}, MBG_{right}) is arranged to vary at different local distances measured from the transition point (TP)-point.
6. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that wherein~~ the transition point-(TP) is ~~arranged to be located~~ within ~~the area~~an area where the incident light wave-(W) first interacts with the splitted grating element-(SG)-element.
7. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that wherein~~ ~~the first~~a first interaction of the incident light wave-(W) with the splitted grating element-(SG) is arranged to take place substantially within a single grating region-(MBG_{right})-region.
8. (Currently Amended) The diffractive grating element-(SG) according to the claim 7, ~~characterized in that wherein~~ at least one of the grating regions-(MBG_{left}) is arranged to redirect or recirculate the light wave waveguided within the substrate-(S) back ~~toward~~to ~~s~~wards a reverse direction inside the substrate-(S)-substrate.
9. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that wherein~~ the splitted grating element-(SG) is arranged to enlarge ~~the exit~~an exit pupil of an optical system.
10. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that wherein~~ the splitted grating element-(SG) is arranged to enlarge ~~the exit~~an exit pupil of a biocular or monocular optical system.
11. (Currently Amended) The diffractive grating element-(SG) according to the claim 1, ~~characterized in that wherein~~ the splitted grating element-(SG) is arranged to enlarge ~~the exit~~an exit pupil of a virtual display.